

Executive Order 14303—Restoring Gold Standard Science

May 23, 2025

By the authority vested in me as President by the Constitution and the laws of the United States of America, including section 7301 of title 5, United States Code, it is hereby ordered:

Section 1. Policy and Purpose. Over the last 5 years, confidence that scientists act in the best interests of the public has fallen significantly. A majority of researchers in science, technology, engineering, and mathematics believe science is facing a reproducibility crisis. The falsification of data by leading researchers has led to high-profile retractions of federally funded research.

Unfortunately, the Federal Government has contributed to this loss of trust. In several notable cases, executive departments and agencies (agencies) have used or promoted scientific information in a highly misleading manner. For example, under the prior Administration, the Centers for Disease Control and Prevention issued COVID-19 guidance on reopening schools that incorporated edits by the American Federation of Teachers and was understood to discourage in-person learning. This guidance's restrictive and burdensome reopening conditions led many schools to remain at least partially closed, resulting in substantial negative effects on educational outcomes—even though the best available scientific evidence showed that children were unlikely to transmit or suffer serious illness or death from the virus, and that opening schools with reasonable mitigation measures would have only minor effects on transmission.

The National Marine Fisheries Service justified a biological opinion by adopting an admitted "worst-case scenario" projection of the North Atlantic right whale population that it believed was "very likely" wrong. The agency's proposed actions could have destroyed the historic Maine lobster fishery. The D.C. Circuit Court of Appeals subsequently overturned that opinion because the agency's decision to seek out the worst-case scenario skewed its approach to the evidence.

Similarly, agencies have used Representative Concentration Pathway (RCP) scenario 8.5 to assess the potential effects of climate change in a "higher" warming scenario. RCP 8.5 is a worst-case scenario based on highly unlikely assumptions like end-of-century coal use exceeding estimates of recoverable coal reserves. Scientists have warned that presenting RCP 8.5 as a likely outcome is misleading.

Actions taken by the prior Administration further politicized science, for example, by encouraging agencies to incorporate diversity, equity, and inclusion considerations into all aspects of science planning, execution, and communication. Scientific integrity in the production and use of science by the Federal Government is critical to maintaining the trust of the American people and ensuring confidence in government decisions informed by science.

My Administration is committed to restoring a gold standard for science to ensure that federally funded research is transparent, rigorous, and impactful, and that Federal decisions are informed by the most credible, reliable, and impartial scientific evidence available. We must restore the American people's faith in the scientific enterprise and institutions that create and apply scientific knowledge in service of the public good. Reproducibility, rigor, and unbiased peer review must be maintained. This order restores the scientific integrity policies of my first Administration and ensures that agencies practice data transparency, acknowledge relevant scientific uncertainties, are transparent about the assumptions and likelihood of scenarios used, approach scientific findings objectively, and communicate scientific data accurately. Agency use of Gold Standard Science, as set forth in this order, will spur innovation, translate discovery to success, and ensure continued American strength and global leadership in technology.

Sec. 2. Definitions. For the purposes of this order:

(a) "Employee" has the meaning given that term in 5 U.S.C. 2105.

(b) "Scientific information" means factual inputs, data, models, analyses, technical information, or scientific assessments related to such disciplines as the behavioral and social sciences, public health and medical sciences, life and earth sciences, engineering, physical sciences, or probability and statistics. This includes any communication or representation of knowledge such as facts or data, in any medium or form, including textual, numerical, graphic, cartographic, narrative, or audiovisual forms.

(c) "Scientific misconduct" means fabrication, falsification, or plagiarism in proposing, performing, reviewing, or reporting the results of scientific research, but does not include honest error or differences of opinion. For the purposes of this definition:

(i) "fabrication" is making up data or results and recording or reporting them;

(ii) "falsification" is manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record; and

(iii) "plagiarism" is the appropriation of another person's ideas, processes, results, or words without giving appropriate credit.

(d) "Senior appointee" means an individual appointed by the President (or an individual performing the functions and duties of an individual appointed by the President) or a non-career member of the Senior Executive Service.

(e) "Weight of scientific evidence" means an approach to scientific evaluation in which each piece of relevant information is considered based on its quality and relevance, and then transparently integrated with other relevant information to inform the scientific evaluation prior to making a judgment about the scientific evaluation. Quality and relevance determinations, at a minimum, should include consideration of study design, fitness for purpose, replicability, peer review, and transparency and reliability of data.

Sec. 3. Restoring Gold Standard Science. (a) Within 30 days of the date of this order, the Director of the Office of Science and Technology Policy (OSTP Director) shall, in consultation with the heads of relevant agencies, issue guidance for agencies on implementation of "Gold Standard Science" in the conduct and management of their respective scientific activities. For the purposes of this order, Gold Standard Science means science conducted in a manner that is:

(i) reproducible;

(ii) transparent;

(iii) communicative of error and uncertainty;

(iv) collaborative and interdisciplinary;

(v) skeptical of its findings and assumptions;

(vi) structured for falsifiability of hypotheses;

(vii) subject to unbiased peer review;

(viii) accepting of negative results as positive outcomes; and

(ix) without conflicts of interest.

(b) Upon publication of the guidance prescribed in subsection (a), each agency head, as necessary and appropriate and in consultation with the Director of the Office of Management and

Budget (OMB Director) and the OSTP Director, shall promptly update applicable agency policies governing the production and use of scientific information, including scientific integrity policies, to implement the OSTP Director's guidance on Gold Standard Science and ensure that agency scientific activities are conducted in accordance with this order.

(c) Each agency head shall, to the extent practicable, incorporate the OSTP Director's guidance on Gold Standard Science and the requirements of this order into the processes by which their agency conducts, manages, interprets, communicates, and uses scientific or technological information prior to the finalization of the updated policies under this section.

(d) Within 60 days of the publication of the guidance prescribed in section 3(a), agency heads shall report to the OSTP Director on the actions taken to implement Gold Standard Science at their agency.

Sec. 4. Improving the Use, Interpretation, and Communication of Scientific Data. No later than 30 days after the date of this order, agency heads and employees shall adhere to the following rules governing the use, interpretation, and communication of scientific data, unless otherwise provided by law:

(a) Employees shall not engage in scientific misconduct nor knowingly rely on information resulting from scientific misconduct.

(b) Except as prohibited by law, and consistent with relevant policies that protect national security or sensitive personal or confidential business information, agency heads shall in a timely manner and, to the extent practicable and within the agency's authority:

(i) subject to paragraph (ii), make publicly available the following information within the agency's possession:

(A) the data, analyses, and conclusions associated with scientific and technological information produced or used by the agency that the agency reasonably assesses will have a clear and substantial effect on important public policies or important private sector decisions (influential scientific information), including data cited in peer-reviewed literature; and

(B) the models and analyses (including, as applicable, the source code for such models) the agency used to generate such influential scientific information. Employees may not invoke exemption 5 to the Freedom of Information Act (5 U.S.C. 552(b)(5)) to prevent disclosure of such models unless authorized in writing to do so by the agency head following prior notice to the OSTP Director.

(ii) risk models used to guide agency enforcement actions or select enforcement targets are not information that must be disclosed under this subsection.

(c) When using scientific information in agency decision-making, employees shall transparently acknowledge and document uncertainties, including how uncertainty propagates throughout any models used in the analysis.

(d) Where employees produce or use scientific information to inform policy or legal determinations they must use science that comports with the legal standards applicable to those determinations, including when agencies evaluate the realistic or reasonably foreseeable effects of an action.

(e) Employees shall be transparent about the likelihood of the assumptions and scenarios used. Highly unlikely and overly precautionary assumptions and scenarios should only be relied upon in agency decision-making where required by law or otherwise pertinent to the agency's action.

(f) When scientific or technological information is used to inform agency evaluations and subsequent decision-making, employees shall apply a "weight of scientific evidence" approach.

(g) Employees' communication of scientific information shall be consistent with the results of the relevant analysis and evaluation and, to the extent that uncertainty is present, the degree of uncertainty should be communicated. Communications involving a scientific model or information derived from a scientific model should include reference to any material assumptions that inform the model's outputs.

(h) Once the guidance on Gold Standard Science is established and promulgated pursuant to section 3 of this order, it shall, among other things, form the basis for employees' evaluation of all scientific and technological information called for in this order except where otherwise required by law.

Sec. 5. Interim Scientific Integrity Policies. (a) Until the issuance of updated agency scientific integrity policies pursuant to section 3 of this order, and except where required by law:

(i) scientific integrity policies in each agency shall be governed by the scientific integrity policies that existed within the executive branch on January 19, 2021, except that in the event of a conflict between such policies and the policies and requirements of this order, the policies and requirements of this order control; and

(ii) agency heads shall take all necessary actions to reevaluate and, where necessary, revise or rescind scientific integrity policies or procedures, or amendments to such policies or procedures, issued between January 20, 2021, and January 20, 2025.

(iii) each agency head shall promptly revoke any organizational or operational changes, designations, or documents that were issued or enacted pursuant to the Presidential Memorandum of January 27, 2021 (Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking), which was revoked pursuant to Executive Order 14154 and shall conduct applicable agency operations in the manner and revert applicable agency organization to the same form as would have existed in the absence of such changes, designations, or documents.

(b) In updating applicable scientific integrity policies pursuant to section 3 of this order, agencies should ensure they:

(i) encourage the open exchange of ideas;

(ii) provide for consideration of different or dissenting viewpoints; and

(iii) protect employees from efforts to prevent or deter consideration of alternative scientific opinions.

(c) Agencies, unless prohibited by law, shall review agency actions taken between January 20, 2021, and January 20, 2025, including regulations, guidance documents, policies, and scientific evaluations and take all appropriate steps, consistent with law, to ensure alignment with the policies and requirements of this order.

Sec. 6. Scope and Applicability. (a) The policies and rules set forth in this order apply to all employees involved in the generation, use, interpretation, or communication of scientific information, regardless of job classification, and to all agency decision-making, except where precluded by law.

(b) Agency heads and employees shall, to the extent practicable and consistent with applicable law, require agency contractors to adhere to these policies and rules as though they were agency employees.

(c) The policies and rules set forth in this order govern the use of science that informs agency decisions but they are not applicable to non-scientific aspects of agency decision-making.

Sec. 7. Enforcement and Oversight. (a) Each agency head shall establish internal processes to evaluate alleged violations of the requirements of this order and other applicable agency policies governing the generation, use, interpretation, and communication of scientific information. Such processes shall be the responsibility, and administered under the direction, of a senior appointee designated by the agency head and shall provide for taking appropriate measures to correct scientific information in response to violations, consistent with the requirements and procedures of section 515 of the statute commonly known as the Information Quality Act, Public Law 106–554, appendix C (114 Stat. 2763A–153). The designated senior appointee may also forward potential violations to the relevant human resources officials for discipline to the extent the potential violation also violates applicable agency policies and procedures. The designated senior appointee may consult appropriate officials with scientific expertise when establishing such processes.

(b) The processes created under this section are, unless otherwise required by applicable law, the sole and exclusive means of evaluating and, as applicable, addressing alleged violations of this order and other agency policies governing the use, interpretation, and communication of scientific information.

Sec. 8. Waivers. (a) An agency head may request in writing that the OMB Director, in consultation with the OSTP Director, waive any of the requirements of this order for good cause shown. Such request must explain how the requested waiver is consistent with the policies and purposes of this order.

(b) Notwithstanding any other provision of this order, the policies and requirements of this order shall apply to agency actions that pertain to foreign or military affairs, or to a national security or homeland security function of the United States, only to the extent that the applicable agency head, in his or her sole and exclusive discretion, determines they should apply.

Sec. 9. General Provisions. (a) Nothing in this order shall be construed to impair or otherwise affect:

(i) the authority granted by law to an executive department or agency, or the head thereof; or

(ii) the functions of the Director of the Office of Management and Budget relating to budgetary, administrative, or legislative proposals.

(b) This order shall be implemented consistent with applicable law and subject to the availability of appropriations.

(c) This order is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

(d) The Office of Management and Budget shall provide funding for publication of this order in the *Federal Register*.

DONALD J. TRUMP

The White House,
May 23, 2025.

[Filed with the Office of the Federal Register, 8:45 a.m., May 28, 2025]

NOTE: This Executive order was published in the *Federal Register* on May 29.

Categories: Executive Orders : Gold standard science, restoration efforts.

Subjects: Centers for Disease Control and Prevention; COVID–19 pandemic; National Marine Fisheries Service; Office of Management and Budget; Office of Science and Technology Policy; Research and development; Scientific research standards, improvement efforts.

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